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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,935	04/27/2001	Alexander Munishkin	Q01/08C	4219

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Attention: Anthony J. Janiuk, Esq.
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EXAMINER	
CHAKRABARTI, ARUN K	
ART UNIT	PAPER NUMBER
1634	9

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/844,935	MUNISHKIN ET AL.	
	Examiner	Art Unit	
	Arun Chakrabarti	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *9 and 13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Detailed Action* .

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-8, 11 and 12, drawn to oligonucleotides, classified in class 536, subclass 22.1+.

II. Claim 9, drawn to method of use of oligonucleotides, classified in class 435, subclass 6.

III. Claim 13, drawn to method of making oligonucleotides, classified in class 435, subclass 91.2+.

2. The inventions are distinct, each from the other because of the following reasons: Inventions of Group I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the polynucleotides can be used to synthesize polypeptides.

3. The inventions are distinct, each from the other because of the following reasons: Inventions of Group I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be

made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made chemically or by hand.

4. Inventions in Group II and Group III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the methods of use of oligonucleotides of Group II have modes of operation, functions, or effects which is different from methods of making RNA molecules e.g., oligonucleotides can be used clinically for diagnosis or prognosis of certain diseases whereas method of making an oligonucleotide involves chemical process.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. A telephone call was made to Anthony Janiuk (508-482-2714) on July 23, 2002 to request an oral election to the above restriction requirement which resulted in an election being made. Applicant elected Group I, corresponding to claims 1-8, 11, and 12, with traverse.

7. Applicant is reminded that upon cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CAR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CAR 1.48(b) and by the fee required under 37 CAR 1.17(I).

8. Claims 9 and 13 are withdrawn from further consideration by the examiner, 37 CAR 1.142(b), as being drawn to a non-elected Group, the requirement having been traversed by the phone call mentioned above.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Marsh et al.(Nucleic Acids Research, (1988), 16 (3), pages 981-995).

Marsh et al. teaches a method of determining the presence or absence of a target molecule (abstract) comprising the steps of:

a) providing a first RNA molecule which can bind to a target molecule and has the formula:

5'-A-B-C-D-E-3'; (Figure 1, 2 and 4)

wherein A is a section of the RNA molecule having 10-10,000 nucleotides which section is, with another sequence, E, replicated by an RNA replicase, the letter "B" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another

sequence D, binds the target molecule under binding conditions, the letter "C" denotes a section of the RNA molecule having approximately 1 to 10000 nucleotides, the letter "D" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another B, binds the target molecule under binding conditions, the section B and D, in combination, comprise in total at least 10 nucleotides, the first RNA molecule, with sections B and D bound to target, is acted upon by the RNA replicase to form a second RNA molecule, said second RNA molecule has the following formula:

5'-E'-X-A'-3';

wherein, E' is the complement to E, and A' is the complement to A, and the letter "X" denotes the complement of parts of the sections B and D which may be replicated, or the letter denotes the direct bond between sections E' and A', and second RNA molecule is replicated by the RNA replicase under replicating conditions and combining first RNA molecule with a sample (Figure 1, 2, 3 and 4 and Materials and Methods, page 983, lines 12-25);

b) imposing binding conditions on a sample potentially containing target molecules in the presence of first RNA molecule, in the presence of the target molecule, first RNA molecules forms a target-first RNA molecule complex to form a first modified sample (Figure 2, 3 and 4);

c) imposing RNA replicase reaction conditions on the first modified sample, in the presence of an RNA replicase, to form second RNA molecule in the presence of target to make a second modified sample (Materials and Methods, page 983, lines 12-25);

d) monitoring second modified sample for the presence of the second RNA molecule or its complement, which presence or absence is indicative of the presence or absence of the target molecule (Materials and Methods, page 983, lines 25-32 and Table 1).

Marsh et al. taches that section "C" may serve as a non base-paired spacer to facilitate access of the replicase to the promoter (page 990, lines 9-10).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CAR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marsh et al.(Nucleic Acids Research, (1988), 16 (3), pages 981-995) in view of Spiegelman (U.S. Patent 3,444,043) (May 13, 1969).

Marsh et al teaches the a composition of claims 1-7 as described above.

Marsh et al. does not teach a composition by providing paired RNA molecules.

Marsh et al does not teach section "C" of the RNA molecule which section is capable of preventing the replication of the first molecule by the RNA replicase (abstract and column 7, lines 8-44).

Spiegelman teaches the customized preparation of RNA templates as he states, "An RNA template of an in vitro replicating system may be formed in situ. If one were, for example, to introduce foreign bases or nucleotides (e.g., analogues of known bases or nucleotides) into the replicating system, a mutant may be formed which would be the biologically active template for replication with those same bases or nucleotides, in such instances, one would be synthesizing mutants in vitro in a known way (Column 5, lines 1-8)".

Spiegelman teaches section "C" of the RNA molecule which section is capable preventing the replication of the first molecule by the RNA replicase (abstract and column 7, lines 8-44).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to substitute RNA template model of Spiegelman as the identification of target molecule in the method of Marsh et al., since Spiegelman et al. states "There is good

evidence that the replicase recognizes the particular sequence of nucleotides at the beginning and at the end of the biologically active viral RNA template during the course of the replication. It is inferred from this recognition pattern that the intermediate portion of the RNA template is not essential to the direction of or instruction found in the replication mechanism studied. This suggests that the recognition sequences of nucleotides present at the beginning and end of a biologically active RNA template molecule can be selectively bonded to otherwise non-biologically active or non-viral RNA to produce a synthesized biologically active RNA product. It is thought that the RNA forms a circle and these two recognition sequences of the molecule overlap each other to provide double-stranded regions: such overlapped regions could afford, therefore, identification of the RNA molecule in a single, rapid scanning process (Column 4, lines 59-75)". An ordinary practitioner would have been motivated to combine the model of custom made RNA template of Spiegelman into the method of Marsh et al. in order to achieve the express advantages noted by Spiegelman of a method which can provide identification of the RNA molecule in a single, rapid scanning process.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marsh et al.(Nucleic Acids Research, (1988), 16 (3), pages 981-995) in view of Stratagene Catalog (1988, Page 39).

Marsh et al. teach the compositions of claims 1-5, and 7 as described above in detail.

Marsh et al. do not teach the motivation to combine all the reagents for detecting an analyte in a sample in the form of a kit.

Stratagene catalog teaches a motivation to combine reagents into kit format (page 39).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine the compositions of claims 1-5, and 7 of Marsh et al. into a kit format as discussed by Stratagene catalog since the Stratagene catalog teaches a motivation for combining reagents of use in an assay into a kit, "Each kit provides two services: 1) a variety of different reagents have been assembled and pre-mixed specifically for a defined set of experiments. Thus one need not purchase gram quantities of 10 different reagents, each of which is needed in only microgram amounts, when beginning a series of experiments. When one considers all of the unused chemicals that typically accumulate in weighing rooms, desiccators, and freezers, one quickly realizes that it is actually far more expensive for a small number of users to prepare most buffer solutions from the basic reagents. Stratagene provides only the quantities you will actually need, premixed and tested. In actuality, the kit format saves money and resources for everyone by dramatically reducing waste. 2) The other service provided in a kit is quality control (page 39, column 1).

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marsh et al.(Nucleic Acids Research, (1988), 16 (3), pages 981-995) in view of Spiegelman (U.S. Patent 3,444,043) (May 13, 1969) further in view of Stratagene Catalog (1988, Page 39).

Marsh et al. in view of Spiegelman expressly teach the method claims and assay reagents of claims 8 as described above in detail.

Marsh et al. in view of Spiegelman do not teach the motivation to combine all the reagents for detecting an analyte in a sample in the form of a kit.

Stratagene catalog teaches a motivation to combine reagents into kit format (page 39).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine the composition of Marsh et al. in view of Spiegelman into a kit format as discussed by Stratagene catalog since the Stratagene catalog teaches a motivation for combining reagents of use in an assay into a kit, "Each kit provides two services: 1) a variety of different reagents have been assembled and pre-mixed specifically for a defined set of experiments. Thus one need not purchase gram quantities of 10 different reagents, each of which is needed in only microgram amounts, when beginning a series of experiments. When one considers all of the unused chemicals that typically accumulate in weighing rooms, desiccators, and freezers, one quickly realizes that it is actually far more expensive for a small number of users to prepare most buffer solutions from the basic reagents. Stratagene provides only the quantities you will actually need, premixed and tested. In actuality, the kit format saves money and resources for everyone by dramatically reducing waste. 2) The other service provided in a kit is quality control (page 39, column 1).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Arun Chakrabarti, Ph.D. whose telephone number is (703) 306-5818.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703) 308-1152.Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Chantae Dessau whose telephone number is (703) 605-1237. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission via the P.T.O. Fax Center located In Crystal Mall 1. The CM1 Fax Center numbers for Technology Center 1600 are either (703) 305-3014 or (703) 308-4242. Please note that the faxing of such papers must conform with the Notice to Comply published In the Official Gazette, 1096 OG 30 (November 15, 1989).

Arun Chakrabarti

Patent Examiner

Art Unit 1655.

July 24, 2002

should be directed to Arun Chakrabarti, Ph.D. whose telephone number is (703) 306-5818.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703) 308-1152.Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Chantae Dessau whose telephone number is (703) 605-1237. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission via the P.T.O. Fax Center located In Crystal Mall 1. The CM1 Fax Center numbers for Technology Center 1600 are either (703) 305-3014 or (703) 308-4242. Please note that the faxing of such papers must conform with the Notice to Comply published In the Official Gazette, 1096 OG 30 (November 15, 1989).

Arun Chakrabarti

Patent Examiner

Art Unit 1634,

July 24, 2002

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600